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APPLICATION NO. 0874381325	FILING DATE 04/25/95	FIRST NAMED INVENTOR OKABE	ATTORNEY DOCKET NO. M 2122-4028
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EXAMINER

MALINOWSKI, W

ART UNIT	PAPER NUMBER
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2871

DATE MAILED:

09/15/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

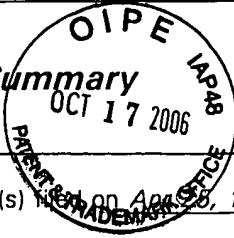
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GROUP 3600

CASE 2122-4028 ATTORNEY BDD
DUE DATE December 15, 1999
STATUTORY DATE March 15, 2000
BY 92

Office Action Summary



Application No.
08/428,325

Applicant(s)
Okabe

Examiner
Walter Malinowski

Group Art Unit
2871



☒ Responsive to communication(s) filed on August 26, 1995

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-18 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-3, 10-12, and 16-18 is/are rejected.

☒ Claim(s) 4-9 and 13-15 is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been
☒ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

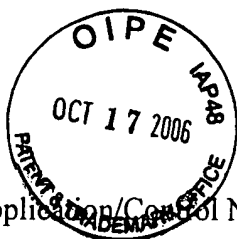
☐ Notice of Informal Patent Application, PTO-152

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--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---



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DETAILED ACTION

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Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on applications filed in Japan on 27 April 1994 and 17 April 1995. It is noted, however, that applicant has not filed a certified copy of the Japanese applications as required by 35 U.S.C. 119(b).

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: part number "63" of Fig. 42 is not identified in the specification. Correction is required.

Specification

3. The abstract of the disclosure is objected to because it is more than one paragraph and should not exceed 260 words in length. Correction is required. See MPEP § 608.01(b).

Claim Objections

4. Claims 4-9 and 13-15 are objected to under 37 CFR 1.75© as being in improper form because a multiple dependent claim may not depend from another multiple dependent Claim.

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See MPEP § 608.01(n). Accordingly, the claims 4-9 and 13-15 have not been further treated on the merits.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2, 10-12, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takanshi et al. (Takanashi), U.S. Patent No. 5,315,410.

Takanashi discloses a photoelectric sensor including a photoconductive layer on an electrode and used to record information on an information recording medium (column 5, lines 50-60), characterized in that when voltage is applied to the sensor after the sensor has been exposed to light with no voltage applied thereto (as shown in Figs. 3-8; column 7, lines 39-68) or voltage of opposite polarity applied thereto.

Takanashi does not disclose a photo-induced current is generated depending upon exposure quantity so that the information can be recorded on the information recording medium.

Because Takanashi discloses an electric field is applied (column 7, lines 27-30) and light is provided to the photosensitive layer (column 6, line 37), photo-induced currents are generated.

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Therefore, as to Claims 1, 2, 10, 17, and 18, it would have been obvious a photo-induced current is generated depending upon exposure quantity so that the information can be recorded on the information recording medium in the device of Takanashi.

Furthermore, as to Claims 2, 10, 17, and 18, Takanashi does not disclose the exposed portion is made higher in conductivity than the unexposed portion and the exposed portion is kept still higher in conductivity than the unexposed portion even after the exposure of the sensor to information light has been finished, and while the sensor remains exposed to information light or after the exposure of the sensor to information light has been finished, nor the application of voltage of opposite polarity is applied thereto, and then the original voltage is again applied thereto, whereby the resulting conductivity is made equal to that obtained by the continued application of voltage.

Takanashi does disclose the impedance of the photoconductive layer 114 varies in accordance with the optical image of the object O, so that the electric field applied to the photo-modulation layer 111 depends on the optical image of object O and the application of the image-dependent electric field to the photo-modulation layer 111 forms a charge latent image on the photo-modulation layer 111 (column 12, lines 21-28). Takanashi also discloses that applied voltage time and amplitude may be varied (column 14, lines 15-25).

It would have been obvious to make the exposed portion higher in conductivity than the unexposed portion and keep the exposed portion still higher in conductivity than the unexposed

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portion even after the exposure of the sensor to information light has been finished so that the charge is reliably set in the recording medium.

Furthermore, as to Claims 2, 10, 17, and 18, it is well known to make the sensor exposed to information light or after the exposure of the sensor to information light has been finished, apply voltage of opposite polarity is applied thereto, and then the original voltage is again applied thereto, whereby the resulting conductivity is made equal to that obtained by the continued application of voltage to permit optimization of device performance.

Furthermore, as to Claim 10, Takanashi shows the image recording medium and the photoelectric sensor separated by an air gap (see Fig. 9). Since Takanashi teaches varying the applied voltage, it would have been obvious to optimize performance to comply with the reciprocity law.

Furthermore, as to Claims 17 and 18, Takanashi (see Fig. 10) shows the photoelectric sensor and the information recording medium being stacked on each other. Takanashi shows a mechanism 4 for starting the application of voltage to the electrodes.

As to Claim 11, Takanashi teaches the information recording medium is a liquid crystal recording medium including on the electrode a liquid crystal-polymer composite material layer comprising liquid crystals and resin (column 6, lines 1-5).

As to Claim 12, since shutter speed and recording properties may be varied, it would have been obvious to satisfy the reciprocity law in optimizing performance.

As to Claim 16, Takanashi teaches the voltage applied is controlled.

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7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takanshi et al. (Takanashi), U.S. Patent No. 5,315,410, as applied to Claims 1-2, 10-12, and 16 above, and further in view of Ando et al. (Ando), U.S. Patent No. 4,692,779, and Shimizu et al. (Shimizu), U.S. Patent No. 5,646,927.

Takanashi makes obvious the photoelectric sensor as claimed in Claim 1 or 2, but does not teach the photoelectric sensor is characterized in that when an electric field of 10^5 to 10^6 V/m is applied to the sensor, a current passing through the unexposed portion has a current density of 10^{-4} to 10^{-7} A/cm².

Ando teaches that liquid crystal in an image forming apparatus have electric fields on the order of 10^5 to 10^6 V/m applied (column 4, line 63, through column 5, line 2).

Shimizu teaches generated photocurrent is about 10^{-6} A/cm² (column 26, lines 1-8).

Therefore, as to Claim 3, it would have been obvious to use an electric field of 10^5 to 10^6 V/m and a current of 10^{-4} to 10^{-7} A/cm², as suggested by Ando and Shimizu, in the device of Takanashi.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Yoshinaga et al., U.S. Patent No. 5,712,066, teach an image forming method and apparatus.

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Katagiri et al., U.S. Patent No. 5,327,263, teach an image forming method and apparatus.

Takanashi et al., U.S. Patent No. 5,313,288, teach an image forming method and apparatus.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter Malinowski whose telephone number is (703) 308-3172.

Walter Malinowski
Walter Malinowski
Patent Examiner
Group Art Unit 2871

wjm

September 6, 1999